



Case Study

Intel® Itanium® 2 Processor

Financial Services

Transaction Management

Efficiency



Scaling Transaction Growth

AKD Trade deploys Itanium® 2-based servers to handle increasing online transactions

The cost of trading online is up to 40 percent cheaper for a customer compared to traditional brokerage services. When AKD Trade became the first company in Pakistan to offer online trading, it opened the floodgates to a new and much awaited market. So popular was the service that after six months, the number of daily and concurrent transactions was maxing out the capabilities of the company's existing servers. AKD Trade sought the help of Intel and Microsoft to provide a scalable solution that would handle increasing growth both now and for the future. With their newly deployed system, AKD Trade can support 3,000 concurrent users, up from the previous 700 concurrent users. Daily average daily transactions have more than doubled to 20,000 with the capability of handling in excess of 35,000 transactions per day without any strain to the infrastructure.

"Of course we had to look at cost and at performance, but we also had to look at long term growth....the solution we deploy needs to sustain the level of performance that ensures we can keep growing."

Tariq Ahmed
General Manager
AKD Trade

Challenge

- **Improve IT capacity.** The popularity of its online trading service maxed out AKD Trade's IT infrastructure capacity, restricting further growth of the business and affecting performance for existing customers.
- **Increase subscriber uptake of services.** Grow the number of daily online transactions and provide customers with an efficient and reliable online trading service.

Solution

- **Deploy Intel® architecture.** Deploy servers based on the Intel® Itanium® 2 processor, together with gigabit networking for high speed computing and data processing.
- **Upgrade software.** Upgrade database to Microsoft SQL Server 2000* 64-bit, and an online trading engine, TradeDemon* from ApplicationXS Pvt. Ltd.

Assessing the Situation

AKD Trade is a subsidiary of AKD Securities, Pakistan's largest securities trading firm. It began operations in November 2002 and is the first to offer online trading in Pakistan. In a country where only one in 75 has access to the internet and less than 0.3 percent of the population holds shares, AKD Trade was entering a new and undeveloped market. None of the projections made predicted the phenomenal growth that the company experienced within the first year of its operations.

Riding on the rise of the Karachi Stock Exchange, the best performing stock exchange in the region in the last two years, the launch of the online trading service filled a much required need,



With a robust, high-performance Itanium® 2-based server platform, AKD Trade more than doubled daily online transactions to over 20,000.

providing an affordable entry into stock trading. By moving away from the traditional method of trading via a broker on the telephone to an automated online system, AKD Trade is able to serve significantly more customers at any one time and at a much lower cost. While the cost of trading is saving the customer up to 40 percent compared to traditional brokerage services, it is up to 60 percent in savings for AKD Trade to service their online clients. This gives them a healthy margin on the trades that is not threatened by increase in volume. AKD Trade utilizes an online trading engine called TradeDemon* that powers AKD Trade Pro* which can be assessed through the Internet via a web browser to conduct online trading. TradeDemon is accessible as a web- or downloadable Java-based application. Together with a dedicated electronic gateway to the Karachi Stock Exchange, AKD Trade's customers have access to real-time trades and stock information as well as portfolio management tools. The electronic gateway also allows for an egalitarian order process based on a first-in first-out queue. Thus larger investors are not automatically prioritized over the smaller traders. These features make online trading through AKD Trade a very attractive proposition to the growing number of new investors to the Pakistani stock market. However, this comes at a cost, as the comprehensive set of features

Spotlight: AKD Trade

- AKD Trade is the first and largest online trading service provider in Pakistan.
- Within two years of coming online, the company has transacted more than 2.5 billion shares with over 1 billion shares transacted within its first year. This compares with the Karachi Stock Exchange's average daily turnover of 339.4 million shares.

provided has very high processor utilization and demands fast number crunching capability.

Being the pioneer online trading service provider, AKD Trade had no point of reference or existing market data with which to accurately predict their technology and capacity requirements. Based on the relatively low Internet penetration and share ownership percentage in Pakistan, conservative forecasts were made for the infrastructure requirements. However, the resounding success of the service within the first six months of operations was putting a strain on their original infrastructure.

Tariq Ahmed, general manager of AKD Trade explains, "Everything was new when we started, there was no precedence to help us plan. Every time we made a forecast (for infrastructure requirements), we had to revise it."

Very quickly, AKD Trade exceeded 85 percent processor usage on their original infrastructure supporting 700 concurrent users out of a user base of 2,000. It became obvious that something had to be done to improve their transaction handling capability, or AKD Trade would risk disruption to their services.

Delivering the Solution

AKD Trade approached Intel for help. The Intel team assessed the long term needs of the company and recommended a transition to an Itanium® 2-based platform that would handle their immediate needs and their expected future growth. The Intel team also approached Microsoft for their expertise in software to optimize the overall solution for AKD Trade.com.

The demands of the growing customer base and the processor-intensive software meant that the Itanium 2-based servers would provide a much more cost-effective solution for AKD Trade. With its extended memory addressing capabilities and 64-bit throughput, the Intel® Itanium® 2 processor is able to better



"As more new players come on to the market, they will have to go through what we went through, but by then, we would have moved on to the next level of capabilities and improved services because we now don't have to worry about our infrastructure requirements."

Tariq Ahmed
General Manager
AKD Trade



"The cost of managing the business is down, and we can keep it low. It's cheaper for us to process trades and maintain a larger client database as the volume helps bring down the cost of each transaction."

Tariq Ahmed
General Manager
AKD Trade

handle data intensive and mission-critical applications such as these better while requiring fewer processors compared to RISC-based solutions. The next natural progression was migration to Microsoft's SQL Server 2000* 64 bit, which is built to take advantage of the features offered by the Intel® Itanium® 2 processor. The 64-bit edition of Microsoft's SQL server supports the increased maximum of addressable memory space which enables more efficient application performance and higher data throughput by eliminating intermediary steps used by 32-bit systems to break down and map chunks of data in order to process them.

With the assistance of Intel and Microsoft, AKD Trade Online transitioned their trading system to a 64-bit platform for both hardware and software, making the company one of the first online trading firms to run on full 64-bit architecture and becoming the first such deployment in Pakistan.

The Intel link team provided recommendations and guidance to ApplicationXS*, helping them enhance their software to make use of the

improved capabilities that the new 64-bit platform provided. The consultants from Microsoft also optimized the structure of the backend database for maximum efficiency as well as shared strategy for database defragmentation.

By transitioning to Itanium® 2-based hardware and software designed for the 64-bit platform, AKD Trade now has a future-proof infrastructure in place. Built for maximum scalability, AKD Trade can now easily add capacity as needed.

The first six months of operations have provided many valuable lessons for the company. So when it came to the migration of their original infrastructure to a new platform, careful assessment of various options were made. "Of course we had to look at cost and at performance, but we also had to look at long-term growth. The solution we deploy needs to sustain the level of performance that ensures we can keep growing," says Tariq.

The increase in transaction handling capacity provided by the new system translates directly

Key Technologies

- Primary and secondary servers run on 4-way Intel® Itanium® 2 processors with 4GB RAM equipped with Gigabit network cards from Intel.
- Data is stored on Ultra-3 SCSI drives running at 15,000rpm controlled using a RAID controller with 512MB cache. The entire IT infrastructure for hardware and software is supported by nine employees who manage and maintain software and hardware for both front-end and backend.
- TradeDemon* from ApplicationXS* is the online trading application running on the system.
- Backend database is built on Microsoft SQL Server 2000* 64-bit running on Microsoft Windows 2003 Datacenter Server*. Microsoft clustering services (MCSC) controls primary and secondary database servers.

Integral Answers

- Intel and Microsoft worked with AKD Trade to help assess their long-term needs and made recommendations for scalability for future growth.
- Intel Itanium architecture provides exceptionally robust performance for large data-sets and high volume transactions. The 64-bit platform provides mission-critical efficiency and scalability for future expansion while reducing infrastructure setup costs
- Microsoft and Intel helped AKD Trade optimize the software to take advantage of the Itanium processor's capabilities and optimizing it for efficiency and performance.

to revenue for the company. One year ago, AKD Trade ranked 20th in terms of revenue numbers amongst the securities firms in Pakistan. Today, they have surged up the rankings to the 6th position even while competing with traditional brokerages that handle institutional investors with large trading volumes.

Citing reasons such as easy administration of database, rapid deployment capabilities, ease-of-use and cost-efficiency, AKD Trade decided that the solution provided by Intel and Microsoft best met their needs. The skill sets required to maintain this solution were already readily available and the support provided by Intel and Microsoft was something that they valued. Using these favorable conditions and despite a major overhaul of their existing systems, the migration was completed in a month, without any negative impact to the daily operations. With the new solution, they now have a clear roadmap for the next three years to be able to support the projected number of online users at a minimum cost.

A clear infrastructure roadmap for the future is very important to AKD Trade, as they are well aware that the success they have enjoyed so far will attract more competitors to the field. However, Tariq is confident that they will be able to stay well ahead of the competition. "As more new players come on to the market, they will have to go through what we went through, but by then, we would have moved on to the next level of capabilities and improved services because, now we don't have to worry about our infrastructure requirements."

The focus for the company now is to develop and roll out new initiatives within the next three to six months that would create new revenue streams from the existing user base as well attract new users. The sales force are also going all out to recruit new sign-ups for the service knowing that the additional users can be supported without any problems and that the user experience would be of the high-standards that they expect.

Find a business solution that is right for your company. Contact your Intel representative, visit the Intel® Business/Enterprise Web site at:

intel.com/business

or visit the industry solutions-specific sites at:

intel.com/business/bss/industry/

None of this expansion has translated to higher cost of operations. In fact, Tariq explains, "The cost of managing the business is down, and we can keep it low. This is important for an Internet services-based company. It's cheaper for us to process trades and maintain a larger client database as the volume helps bring down the cost of each transaction." This will no doubt be a factor which will continue to contribute to AKD Trade's growth.

Return on Investment

- The Itanium® 2-based platform provided a high performance, stable and reliable platform to run a 24x7 mission critical online securities trading system, giving AKD Trade the assurance of low business risk.
- The solution provided AKD Trade with the ability to support a much larger user base, allowing the business to grow at an accelerated pace, and keep up with business competition.
- As a result of the improved transaction times, customers have a much faster and better experience dealing with online transactions, leading to customer satisfaction and retention.
- The system is a future-proof solution with an open and scalable architecture that allows additional capacity to be easily added on as needed.



Solution provided by:

Microsoft®

Copyright © 2006 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel. Leap ahead., Intel. Leap ahead. logo, Itanium, and Itanium Inside are trademarks or registered trademarks of Intel Corporation and its subsidiaries in the United States and other countries.

This document is for informational purposes only. INTEL MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS DOCUMENT.

*Other names and brands may be the property of their respective owners. 0206/AUL/PMG/XX/PDF 311679-001US

